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## Center promotes land-based carp culture

By **NJ Dagoon**

The National Inland Fisheries Research Center (NIFRC) in Rizal province was designated as the national center for carp production and research in the '70s.

Today, the Center serves as the Philippine germplasm center for major carp species and other freshwater fishes. It also conducts stock assessments and limnological studies of major lake and reservoir systems in the country. It develops and verifies aquaculture technologies for dissemination; organizes training courses for farm managers and technicians; and provides consultancy services to aquaculture project operation.

In a recent interview with Ms. Adelaida Palma, NIFRC chief, we learned of the latest developments in the Center, particularly on bighead carp culture.

Two major fisheries development projects are being undertaken by NIFRC. The first, seed production of cyprinid species, has three components: fingerling production, human resource development through training and extension; and cyprinid research culture technologies. The second is a national carp fisheries development program, which has two components, namely: genetic improvement/upgrading of carp broodstock and warmwater carp fisheries development.

NIFRC and the SEAFDEC/AQD's Binangonan Freshwater Station undertake collaborative activities, mainly on genetic upgrading. A joint project on crossbreeding pure Wuxi 'strain' (not really a strain, Chief Palma clarified, but a pure, fresh batch from China) with SEAFDEC stock is underway. Improving the gene pool is considered a very important research aspect as inbreeding amongst existing stocks, only result to physical abnormalities, growth impediments and disease susceptibility. When successful, the upgraded stocks will be dispersed to satellite hatcheries.

One identified setback for carp is its rather relatively low acceptability in markets with a proliferation of marine fish products.

However, NIFRC discovered high acceptability of freshwater fishes in upland and landlocked areas. It now conducts co-operator-based demonstration projects in upland Ifugao and Quezon. Altogether, carp culture has now spread to northern, central and southern Luzon and Mindanao. There are also existing cultures in Negros and Camotes Islands in the Visayas.

The Center promotes three types of carp grow-out culture practices: polyculture, integrated farming, and carp openwater stocking.

The polyculture method of stocking tilapia and carps in combinations of either 50/50 (tilapia/carp) or 60/30/10 (tilapia/common carp/bighead carp) has already been verified by the Center. With an average production of 4.2 tons per ha, a high margin of profit (about 2/3) is assured. There is minimal expense, since the culture is fertilizer-based, with no supplemental feeding.

Carp openwater stocking has arrived. "A lot of inland waters have problems," Chief Palma remarked. "We are studying possibilities of rehabilitating inland waters using carp as a tool... We try to study what natural food is not being effectively consumed in a body of water (then we try) to match it with a carp species."

To cite a case, if the presence of much phytoplankton in the water is detected, despite the presence of tilapia, silver carp is introduced. If the dominant unconsumed food is zooplankton and none of the fish species in the water body is an effective grazer, then the Center stocks it with bighead carp. Using the vacant niche approach, carp becomes a biological cleaner in lakes and reservoirs saturated with cages and excess feed.

A current project she mentioned is the Marikina river rehabilitation program where the Center stocks common carp, a bottom feeder. The Center also sponsors managed operation stocking type of activities in Laguna Lake, where there are active fishers' associations. Within a semi-enclosed area, the Center stocks different species of carp, then lets the fishers manage the area for six months. After the period, the fish are harvested. Since the seed have been provided for free, the fishers spend almost nothing for their earnings.

NIFRC continues to receive encouraging feedback from the fishfarmers about the practices it is promoting.

Asked about the possible displacement of native freshwater fish species by carp, Chief Palma replied that that is no danger. Bighead carp are not known to reproduce in inland waters; this makes it easy to retrieve the original carp stock, should competition with indigenous species be established. Even in Lake Lanao where the common carp is considered endemic (having been introduced in 1915), the fish's survival until maturity is placed only at around 5%, as its harvest is faster than its reproduction rate. Gravid females are highly sought after for their eggs and command a high price if caught. And while some females do succeed in producing young, they are not particularly good as a species in caring for them. Carp can never rise up to be a dominant species, as it is even considered endangered. The Mindanao State University, she mentioned, even has plans of restocking Lanao Lake.

The NIFRC head felt it was fairly easy for common carp fry production to be developed the way tilapia stocks are, in backyards. But for bighead carp, she was more in favor of few, strategically located hatcheries capable of mass production, as

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too many might saturate the market for grow-out.

The BFAR Center produces only around 20,000 to 50,000 fingerlings per production schedule. It sells these one-month-old hatchlings at a price much lower than the private sector does (P1 thereabouts), for 30 cents apiece. Spawning runs are done at the Center 5 to 6 times a year.

Existing market conditions suggest not much demand for common carp in Manila. In Lucban, Quezon and the Bicol region, however, carp prices range from P90 to P120 a kg.

Bighead carp is usually sold disguised as a marine fish (e.g., maya-maya) in big city markets. Its sections are priced differently: the head region, P45-50; head to belly, P70 and the tail portion, P45.

The Center does acknowledge the need to promote the acceptability of carp as a foodfish, in markets dominated by marine fish produce. This goal may be realized with NIFTC's proposal to integrate value-added carp-based production development in collaboration with the postharvest technology division of BFAR. Carp is very good for surimi products, Ms. Palma noted.

Carp is 12% of the national freshwater fish production as reported by the Bureau of Agricultural Statistics (BAS), the NIFTC Chief noted. But this figure could be misleading, she said. "Twenty per cent would be nearer the actual production." She added that the discrepancy must be because different areas have different local names for carp—bighead, Imelda and mamalig are carps. She has asked BAS to review its recorded data and reconcile its statistics with current production.

Carp fisheries development that NIFTC looks forward to in the future is land-based: polyculture and integrated farming. The first-ever NIFTC nationally conducted training on carp-based integrated farming is slated this October. "The integrated approach would be a very sound

development," she said, noting that it is the Center's next step after carp hatchery and culture technology transfer; and that it meets the government's goals of food sufficiency and sustainable aquaculture development.

When asked for her concluding remarks, Chief Palma said: "Considering the low production of carp and high production turn-out for culture, and if we're trying to develop an alternative species geared towards attaining food sufficiency at the same time preserving the environment, I think we can always look up to carp as an alternative species—*Carpa para sa Masa*, Carp for the Masses." ###

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*What kind of carp culture developments would you like to see in the future?*

**Engr. Aralar:** Increase in the survival rate of larvae. It is very low right now. We consider 60% already very high. Hatching rate depends on water quality management, it varies from about 60 to 80%.

**Dr. Santiago:** I'd like to see people work/further developments on the broodstocks' consistent reproductive performance.

*What direction will the future take?*

**Dr. Santiago:** Broodstock development rather than hatchery operations.

*Has carp hatchery technology reached its fullest potential?*

**Dr. Santiago:** There's still much room for growth, especially in landlocked areas—those areas which cannot be supplied by marine fish, like some areas in Mindanao.

*Any parting words for our readers?*

**Dr. Santiago:** I would just like to reiterate that if you go into carp culture, you will be supporting the country's food security program. I'd like to assure you that there is money in carp culture.

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he has done, is finding out what causes some fish ailments—gas bubbles, deformities—and eliminating these. The methods are his trade secrets.

He does not plan to expand into value-added products in the future yet. What he envisioned is the acquisition and setting up of a 20-ha fish pen for broodstock and grow-out operations. Currently, he has a 50% share of a grow-out pond in Sta. Maria, Laguna. He sells his grow-out produce at P25 per kg. These are marketed at the Binangonan and Malabon markets, where he said, "kahit ilang tonelada, ubos lahat" (even tons and tons of fish will all be sold out).

Aralar plans to increase their family's current stock of 1,000 broodstock. That is by purchasing breeders whose prices range from as low as P300 to P800. By doubling the capacity of his hatching jars to accommodate 7 million fry per run, he believes he can fill in the current 30% deficit in fry supply.

Living conditions is his barangay which he estimates has around 2,000-3,000 families have improved; and this prosperity he attributes to carp.

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